The Dissertation Committee for Marie Alicia Guadagno Certifies that this is the approved version of the following dissertation:

Health Decisions for Others: An Extension of the Health Belief Model

Committee:

Michael Mackert, Supervisor

Gary Wilcox

Lucinda Atkinson

Erin Donovan

Lorraine Walker

Health Decisions for Others: An Extension of the Health Belief Model

by

Marie Alicia Guadagno

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Dedication

To come.

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Health Decisions for Others: An Extension of the Health Belief Model

Marie Alicia Guadagno, Ph.D.

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Supervisor: Michael Mackert

The Health Belief Model (HBM) is a widely-used theory to understand why individuals engage in certain health behaviors. With its focus on perceived benefits and barriers as major contributors to behavior change, the HBM is also noted as a valuable framework in health communication research and practice. The overarching purpose of this study is to consider an outward focus to the HBM, adding to its already strong explanatory power of how individuals make health decisions for not only themselves, but for others as well. The findings of this research may have practical implications in healthcare settings, between health professionals and patients, and may add value to health promotion campaigns so they resonate better with intended audiences.

This study will first discuss the HBM; its history and its early uses in health behavior research. It will then discuss the limited research that attempts to use the HBM in the context of 'others', and theories from interpersonal communication that have also touched on the subject – such as communal coping. Locus of control and fatalism are also taken in to account as potential modifiers to how people go about making health-related decisions for others. The conceptual background for this study is in the context of prenatal/pregnancy health. Maternal and infant health research is the investigator's focus

and fits well in to the idea of making health decisions for others and the potential expansion of the HBM. A review of prenatal health promotion, both from an interpersonal and mass communication perspective is also given.

A sample of graduate students and members of the community (N=21) were interviewed for this study. The methods, results, discussion, and implications of the findings are provided in the following chapters.

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Chapter 1: Introduction

The Health Belief Model (HBM) is a widely-used theory to understand why individuals do or do not engage in a variety of health behaviors. The model was developed in the early 1950s by Hochbaum, Leventhal, Kegeles, and Rosenstock to help explain why individuals failed to accept preventative measures and/or screenings for certain asymptomatic diseases (Janz, Champion, & Strecher, 2002; Painter, Borba, Hynes, Mays, & Glanz, 2008). The model's core tenets – perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy – are known to influence health behavior decisions and are useful in guiding theoretical research and practice (Janz & Becker, 1984; Janz et al., 2002).

With its focus on perceived benefits and barriers as major contributors to behavior modification or change, the HBM is also noted for being a valuable framework for the development of health promotion campaigns. It has been cited as the conceptual framework in thousands of studies on health education and programming and has been applied to a range of health behaviors, such as the prevention of HIV/AIDS (Carmel, 1990; Rosenstock, Strecher, & Becker, 1994), food safety (Hanson & Benedict, 2002), folic acid consumption (Mackert, Donovan, & Guadagno, 2013), chronic illness management (Bloom Cerkoney & Hart, 1980; Horne & Weinman, 1999), smoking behavior (Galvin, 1992), testicular and breast self-examination (McClenahan, Shevlin, Adamson, Bennett, & O'Neill, 2007), and more. The HBM and its explanatory power has been adapted and strengthened over time by the inclusion of new variables, such as the

addition of self-efficacy and cues to act, which were not part of the original model in the 1950s (Janz et al., 2002; Rosenstock, Strecher, & Becker, 1988).

As with any behavior change theory, continuous testing and adaptation is necessary as times advance and societal factors change. Therefore, it is worth exploring how the HBM could be further strengthened through the addition of other variables not considered in its current use. A current gap in the literature is how the HBM may function when the self is not the intended audience or population for health behavior action, change, or modification. To date, the HBM is largely inwardly-focused, or self-focused. Research indicates that health decisions are often not made solely by an individual, but in collaboration with close relatives/friends and the community (virtual included), and can also be influenced by the effects of mass and social media (Coleman, 1993; Duggan, 2006; Ogata Jones, Denham, & Springston, 2006; Valente, 1996; Valente & Saba, 1998). The closest research conducted on the HBM and making health decisions for others has, coincidentally, been on parental vaccine acceptance/refusal. Acceptance of the Salk vaccine for polio was Irwin Rosenstock's, one of the founders of the HBM, early exploration of the model's application (Rosenstock, Derryberry, & Carriger, 1959).

The proposal to explore an outward extension of the HBM stems from several areas of health and communication research, including mass communication efforts as well as interpersonal communication theories such as locus of control and the perspective of communal coping. The main driver behind this exploration is that the HBM has often been applied to health decisions that affect others outside of the self *as if the self and the other person are a single entity*. Examples of this include parents' choices on childhood

vaccinations, adult children's decisions on their elderly parent's care, friends' ability to encourage 'good' health behavior in one another and so on (Bond, Nolan, Pattison, & Carlin, 1998; Galvin, 1992; Jørgen Nexøe, 1999; Miller & Harris, 2012; Smith et al., 2011).

The overarching purpose of this study is to consider an outward focus to the HBM, perhaps adding to its already strong explanatory power of how individuals make health decisions for not only themselves, but for others as well. Research in the area of an outwardly-focused HBM could also have practical implications in healthcare settings, between health professionals and patients, and may add value to health promotion campaigns so they resonate better with intended audiences. Extending or adding an interpersonal communication focus to the HBM may expand avenues for researchers to solve health problems in ways not previously used.

This dissertation will first cover the HBM; its history and its early uses in health behavior research and health promotion planning. It will then discuss the limited research that attempts to use the HBM in the context of 'others', and theories from interpersonal communication that have also touched on the subject – such as communal coping. Locus of control and fatalism (e.g., luck, fate) are also taken in to account as potential modifiers to how people go about making health-related decisions for others. The conceptual background for this study is in the context of prenatal/pregnancy health. Maternal and infant health research is the investigator's focus and fits well in to the idea of making health decisions for others and the potential expansion of the HBM. A review of prenatal health promotion, both from an interpersonal and mass communication perspective is also

given. The methods, results, discussion, and implications for the study are provided in the following chapters.

Chapter 2: Literature Review

HEALTH BELIEF MODEL

The development of the HBM came about through public health concerns in the early 1950s, particularly for detection of asymptomatic diseases. A team of social psychologists at the United States Public Health Service sought to understand why eligible adults were overwhelmingly not taking part in free tuberculosis screening programs which had been set up in mobile X-ray units. The social psychologists drew upon contemporary cognitive theorists' idea of value-expectancy, where in a health context, an individual both *values* avoiding disease or getting well and *expects* that taking on a certain preventative or reformative health behavior may help avoid or mitigate the disease (Glanz, Rimer, & Viswanath, 2008; Janz & Becker, 1984).

The initial constructs of the HBM were conceptualized after researchers from the Public Health Service surveyed more than 1,200 adults to understand their willingness to get X-ray tested – this included their perceived susceptibility of tuberculosis as well as their perceptions of the benefits to early detection. Of the individuals surveyed by the researchers at the Public Health Service, 82% who exhibited *both* perceived susceptibility to tuberculosis and a perceived benefit to early detection obtained a voluntary chest X-ray (Glanz, Rimer, & Viswanath, 2008). The core tenets of the model were conceptualized in the 1950s and the model gradually evolved throughout the decades, including other constructs related to social psychology, such as self-efficacy (Rosenstock, Strecher, & Becker, 1988).

Fundamentals of Health Belief Model

In the broadest context, the HBM attempts to predict health related behaviors based on perceptions about the health condition and the recommended behaviors that prevent or mitigate it (Janz & Becker, 1984). The model explains that an individual's perceived susceptibility to a condition and the severity of its consequences contributes to the overall perceived threat. If the individual perceives that the negative health condition can be avoided, that threat can lead to taking preventative or corrective health measures. The model also suggests that individuals are more likely to act on a health recommendation if they have knowledge of the negative condition and/or if they are reminded by cues from media campaigns, professional health providers, family or friends (Janz, Champion, & Strecher, 2002). Targeted health promotions can increase knowledge of a negative health condition and also serve as cues to take corrective action. In the middle of the model, modifiers such as demographics, socio-psychological constructs, and structural variables are said to influence perceived threat and ultimately the likelihood of taking action. Figure 1 depicts the most current form of the model, where the first two constructs of individual perceptions and modifying factors are considered the independent variables and the likelihood of taking a recommended health action is treated as the dependent variable, or the outcome variable.

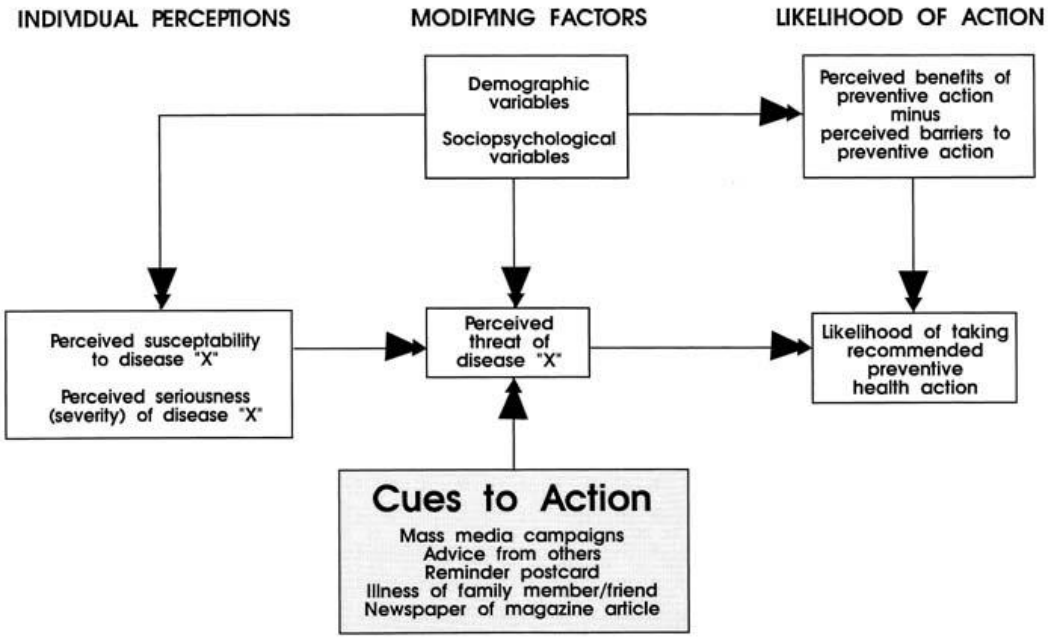

Figure 1: Health Belief Model

Perceived Susceptibility and Severity

In the model, individual perception of *susceptibility* is the subjective assessment of risk of developing a particular health-related problem. People who perceive that they are vulnerable to a particular health issue or disease will engage in modifying behaviors to reduce their risk for developing said health issues. Individuals who perceive themselves as low in susceptibility may not believe that they are in danger of getting sick – or that it is highly unlikely that they will become ill. Individuals who feel a high level of susceptibility believe that they may be personally affected by the particular health problem and may be more likely to change their behaviors to attempt to lessen their susceptibility (Janz & Becker, 1984; Janz, Champion, & Strecher, 2002).

Coupled with perceived susceptibility, perceived severity refers to the subjective assessment of the severity of a health-related problem and its potential outcomes and consequences. Individuals are more likely to change behaviors when they perceive a condition to be very serious and are less likely to engage in healthy behaviors if they believe the condition is not very serious. Perceived severity refers to subjective beliefs about experiencing the health problem itself (e.g., pain, morbidity, and mortality) as well social impacts of the health problem (e.g., ability to work, effects on relationships). It is important to note that both perceived susceptibility and severity are highly subjective to each individual (Janz & Becker, 1984).

Perceived Benefits and Barriers

Perceived benefits and barriers are on the far right side of the model, or the 'outcome' side, where an individual is likely to take action. The individual's perception of the benefits to taking action must outweigh the perceived constraints or barriers to taking action. Examples of barriers can include physical obstacles, such as distance, accessibility, and financial resources, but also psychological obstacles, like anticipatory discomfort, or embarrassment. Research indicates that these two constructs are the most important in the model – and that perceived barriers is often the best predictor of an individual performing a certain health behavior (Janz & Becker, 1984; Janz et al., 2002).

Cues to Act

In the HBM, triggers or cues to act are noted as a necessary construct to prompt behavior change or modification. Cues can be newly-learned or acquired information

regarding health issues, or can be simple reminders. These cues can be internal/physical events – such as the self falling ill, or they can be external, such as a family member becoming sick. This construct also encompasses forces both outside the immediate self and family and outside the experience of illness, such as receiving cues from healthcare providers, from mass media, or product warning labels. This construct is important for health communication researchers and practitioners as it is the one involves persuasion, message-resonation, and message-receptivity (Janz et al., 2002).

Self-Efficacy

The HBM was reformulated in 1988 by Rosenstock, Strecher, and Becker to incorporate the construct of self-efficacy. Self-efficacy refers to the belief that one can successfully execute the necessary behavior required to produce desired outcomes (Bandura, 1986). In the HBM, self-efficacy is considered the confidence in one's ability to perform and maintain a recommended health behavior. With this addition, the HBM posits that in order for successful health behavior change to occur, an individual must feel a threat (perceived susceptibility and severity) and believe that there is a strong benefit to taking action to reduce or eliminate that threat. The benefit to taking action must be greater than the perceived barriers or obstacles the individual faces. The individual must also possess the confidence to overcome those perceived barriers and to maintain the recommended behavior in order to mitigate a particular health risk (Rosenstock, Strecher, & Becker, 1988).

HBM APPLICATION TO OTHERS

To date, research utilizing the HBM tends to focus on the adoption, change, or modification of health behaviors for the self. Although the HBM has been widely-used since the 1950s to explain health behavior choices, research on health decisions for others are often lumped in under the HBM as if the two (or more) individuals are a single entity, with most studies not acknowledging or disclosing the difference between the self and making a choice for others. In other explorations, application of HBM constructs to others are not central to the study, but rather tacked on as 'supporting cast' to the participants (Chen et al., 2011; Croog & Richards, 1977).

Vaccines

The most prominent example of this type of research uses the HBM to examine parental choice to forego or delay vaccines for their children. Although it can be argued, correctly, that infants and children cannot make health choices for themselves, the research rarely acknowledges that these decisions are being made *for* others (Bond et al., 1998; Smith et al., 2011). Of the studies reviewed, very few are qualitative – which would allow for deeper exploration of how parents' decisions to vaccinate fit in to the constructs of the HBM. The majority of the studies used primary or secondary survey data that lacks contextual richness (e.g., close-ended questions such as "Are vaccines safe?" do not fully represent underlying perceptions, attitudes, beliefs, and intentions of parents).

Smoking Cessation

A study on smoking cessation and the HBM examined the behavior of male smokers who had survived heart attacks *and the subsequent behavior of their wives* (Croog & Richards, 1977). The researchers found that regardless of how the wives perceived the threat of heart attack from smoking in their husbands, their own smoking behavior changed little throughout the years of the study. This was an interesting finding because more than 20% of the wives reported directly that *they* could have done something to help their husband avoid his first heart attack. This study, conducted in the 1970s, indicates some spouses believed they had the capacity to intervene or prevent a serious illness in their partner, but the HBM constructs were not fully operationalized in this context – self-efficacy was not yet a core tenet of the model. In this study, the wives were the 'supporting cast' and the results mostly focused on how the husband's beliefs and actions fit in to the HBM.

Other studies have focused on male/partner smoking cessation during pregnancy, but did not use the HBM as a theoretical framework (Bottorff, Oliffe, Kalaw, Carey, & Mroz, 2006; Pollak et al., 2010). The findings of these studies substantiate research that shows pregnancy is a time when men feel differently about their health and actions because of potential harm to the mother or unborn baby. Although the theoretical underpinning of these studies was not the HBM, applicable constructs such as risk perception were assessed. Men perceived a high risk associated with their smoking and felt it harmed a pregnancy and an unborn baby. This perception was strongly correlated with motivation to quit smoking so their baby can be healthy (Pollak et al., 2010).

Although these studies contained aspects of the HBM, they did not operationalize each construct of the model. Thus, a gap in the research on the HBM as it relates to others still exists.

CURRENT SCOPE

The current study of potential expansion to the HBM evolved from the investigator's research on more effective ways to promote positive prenatal health behavior. Traditional prenatal health promotion, especially in the United States, has focused almost solely on females, excluding most male partners (Dudgeon & Inhorn, 2004). Public health scholars outside of the United States began to explore the role of including men in prenatal health education programs – which produced better birth outcomes in many studies (Katz et al., 2009; Molzan Turan, Nalbant, Bulut, & Sahip, 2001; Mullany, Becker, & Hindin, 2007; Shefner-Rogers & Sood, 2004). From this repeated finding, as well as from the literature that suggests health decisions are not typically made alone (Angst & Deatrick, 1996; Geller, Doksum, Bernhardt, & Metz, 1999; Prohaska & Glasser, 1996), the structure of the HBM appeared to be lacking a focus on health behaviors where the person is taking action on a health decision because of someone else (e.g. a newborn). Although current theories and frameworks, particularly those in the field of interpersonal communication, skirt around this outward focus in some ways, none have looked at this unique concept through the lens of the HBM. The following offers an overview of several theories and concepts that laid the groundwork for the research questions posed in this dissertation.

Locus of Control

Locus of control in health is a construct that attempts to explain why individuals take on certain health behaviors (Wallston & Wallston, 1978). In this attitudinal construct, it is generally agreed upon that individuals who believe their health is controlled by outside factors such as luck or fate have an external locus of control. These individuals feel that there is little they can do to avoid an illness if the factors are beyond their control. Conversely, individuals who believe their health is determined by their own behavior are viewed as having an internal locus of control. An internal locus of control is associated with a belief that the person can influence their own lives more than external factors can. These individuals are more likely to acquire information and use it to solve a particularly problem (Jørgen Nexøe, 1999; Rosenstock, Strecher, & Becker, 1988; Rotter, 1966).

The effect of locus of control on preventative health behaviors has been inconclusive throughout the literature; with some large-scale studies reporting locus of control has influence on certain behaviors such as exercise and smoking (Steptoe & Wardle, 2001) and other studies failing to find significant influences on behaviors such as weight loss and contraceptive use (Wallston & Wallston, 1978). While locus of control has been used in conjunction with the HBM, researchers are apt to point out that locus of control is not the same as the self-efficacy variable of the HBM. Where self-efficacy in the HBM is situational, locus of control is a generalized and consistent concept about the self (Rosenstock et al., 1988). Although locus of control takes into account outside factors and influencers related to health outcomes, it is not exactly on point when

considering if and how individuals make health behavior choices for others. It is, however, useful to review the locus of control literature when attempting to extend the HBM. It could be that an individual's locus of control over health outcomes is projected on to others who they are trying to make health decisions for – e.g. an individual could view the chance/fate aspect of health strongly and thus not believe they can influence the health outcomes for others.

Fatalism

The concept of fatalism refers to a general belief that fate cannot be changed and that events are beyond one's control. An example of this is the notion of "what will be, will be". Individuals who rate highly on fatalism, like those with external locus of control, believe that they have little to no control over factors that affect their lives (Abraído-Lanza et al., 2007). "Luck" is often attributed to events or conditions as well. Individuals who are fatalistic may believe that luck rather than behavior can explain life's outcomes. Although fatalism can certainly be associated with locus of control, the concepts are not identical – fatalism can be thought of as more narrow in scope (Foxman et al., 1990). Fatalism has been extensively cross-culturally researched – with particular emphasis in the United States among Latin Americans and African Americans due to lived experiences such as oppression. However, research indicates that education and income, rather than race and ethnicity, are main drivers of fatalistic attitudes (Abraído-Lanza et al., 2007; Cho, 2011).

When examined in the context of health, fatalism is typically conceptualized as a set of negative beliefs and attitudes regarding health-seeking behaviors and illness (Davison, Frankel, & Smith, 1992). The most robust literature surrounding the concept of fatalism and health has been in the realm of cancer, particularly around screenings because fatalism presents a potential barrier to early discovery (Abraído-Lanza et al., 2007; Davison et al., 1992; Maibach & Cotton, 1995; Powe & Finnie, 2003). Research indicates that the concept of fatalism is often difficult to measure and that current scales lack in both content and construct validity. These complex domains of the concept of fatalism make it particularly hard to address via health communication campaigns (Cho, 2011).

As described as in the section on locus of control, fatalism could also play a role in how individuals make choices for others. It could be that a highly fatalistic person will view the chance/luck/fate aspect of health strongly and thus not believe they can influence the health outcomes for others. To this end, updated scales by Shen, Condit, and Wright, were included in this investigation to explore possible influences of fatalism on how individuals may make health decisions for others (Shen, Condit, & Wright, 2009).

Interpersonal Communication and Decision Making

Closer to the concept of a potential outwardly-focused construct in HBM is the literature surrounding interpersonal communication and decision making in regards to health behavior. This is a robust area of research that can encompass health decisions

made within families, between friends, counselors, doctors, patients, online communities and more (Geller et al., 1999; Mattson, 1999). Research indicates that mass media, such as television, can often spur more intimate interpersonal communication about health issues that then translates into adopting a preventative health action (Shefner-Rogers & Sood, 2004; Valente, 1996; Valente & Saba, 1998). Mattson (1999) proposed a reconceptualization of the HBM to include a more central and intra/interpersonal focus on the cues to action construct with regards to HIV/AIDS test counseling. Drawing upon prior research that found individuals are more likely to believe HIV/AIDS is a serious disease and that they are more susceptible to it when exposed to influential people or AIDS victims, Mattson posited that interpersonal counseling as cues to action would result in safer sex practices, which was partially supported.

Although not a direct similarity to extending the HBM in an outward fashion, Mattson (1999) laid the path for additional research on reconceptualization the interpersonal cues to action within the HBM. Again, though this is not a precise call to focus the HBM on how individuals make decisions for others, it does suggest that interpersonal communication can help spur health behavior change in others.

Communal Coping

Communal coping is another theory used in interpersonal communication and is often associated with the handling of stress or health issues (Lewis et al., 2006; Wells, Hobfoll, & Lavin, 1997). Communal coping was proposed as a response to other coping theories which focus on *individual* efforts to manage stressors through cognitive and

emotional appraisal. Defined by Lyons, Michelson, Sullivan, and Coyne (1998), *communal coping* refers to couples or partners holding a shared evaluation of a health threat and a vision of shared action about managing the threat to health. The process of communal coping involves one or both members of the dyad believing that a joint effort is advantageous, needed, or useful in reducing the health threat; that the couple openly discusses the situation; and that the couple takes part in supportive and willing action to solve the health problem (Lewis et al., 2006). Health issues in the context of communal coping become the "couples" problem and responsibility, rather than separate "yours/mine" issue.

Lewis et al. (2006) proposed adding constructs from interdependence theory to communal coping and their model resembles the HBM in the sense that the input variables include assessing a threat and cues to act – and the dependent variable is taking on health-enhancing behaviors as a couple. This is similar to exploring how the HBM would work when applying it to the health of others, but does not use the entire breadth of constructs in the current HBM. Their extension of communal coping also is heavily focused on equal dyadic relationships such as marriage partners, not necessarily children, or elderly parents, etc.

CONTEXT OF STUDY

Prenatal Health

The context for the current study is prenatal health communication and behaviors. Pregnancy is a time when dynamics between partners and mothers-to-be often shift to

focus on ensuring good outcomes for the baby (Widarsson et al., 2012). Communication during pregnancy is an important part of overall maternal healthcare behavior and decision-making. Interpersonal communication, such as with a spouse, has been found to positively influence behaviors taken on by pregnant women – particularly for first-time mothers. Social marketing campaigns have also been linked to taking on positive health behaviors during pregnancy. This includes behaviors such as seeking healthcare during each trimester, smoking cessation, eating healthier, preparing a birth plan, and more (Gerein, Mayhew, & Lubben, 2003; Jirojwong, Dunt, & Goldsworthy, 1999; Widarsson et al., 2012). The HBM has been applied to a range of activity surrounding pregnancy and post-partum health behaviors such as seeking physician care (Zweig, LeFevre, & Kruse, 1988), following proper dietary recommendations (Kloeblen & Batish, 1999), intention to receive diagnostic ultrasounds (Sagi, Shiloh, & Cohen, 1992), and approval/delay/refusal of childhood vaccines (Chen et al., 2011; Smith et al., 2011).

Along with scientific advances and increased public health promotion, interpersonal and mass-mediated communication can be an effective tool to help improve birth outcomes. For example, in countries with high maternal and infant mortality, improving communication between spouses and pregnant women has been reported to be advantageous in increasing birth preparedness as well as adopting healthier behaviors during pregnancy (Molzan Turan, Nalbant, Bulut, & Sahip, 2001; Mullany, Becker, & Hindin, 2007). Similar positive findings for mass-mediated campaigns about pregnancy health have been reported (Shefner-Rogers & Sood, 2004; Valente, Poppe, & Merritt, 1996).

Prenatal health communication is an important aspect of maternal healthcare in the United States as well. The infant mortality rate in the United States ranks among the highest of all countries with a developed healthcare system; with an estimated 6.15 infant deaths per 1,000 live births and 15.8 – 28.0 maternal deaths per 100,000 live births (Creanga et al., 2014). An additional ~60,000 women each year suffer severe complications during pregnancy, labeled "near-miss" maternal mortality (Creanga et al., 2014). The leading causes of infant mortality are congenital anomalies, preterm birth (<37 weeks), and low/very low birth weight. High infant mortality is even more pronounced among racial and ethnic minorities, particularly in non-Hispanic blacks, Native Americans, and in certain populations of Hispanic American women (Prue, Hamner, & Flores, 2010). These women are disproportionately impacted by poor birth outcomes which can ultimately lead to infant death and maternal complications. There is a serious and recognized need to address the United States high infant mortality rate and to improve the health of mothers, infants, and children. Improving prenatal care and pregnancy outcomes are some of the Maternal, Infant, and Child Health (MICH) goals of the United States government's Healthy People 2020 initiative.

Mass Communication Campaigns

The HBM is often cited as the framework for many social marketing campaigns in which mass media is utilized (Hayden, 2009). Improving these health promotion campaigns is an important part of solving public health issues and a strong theoretical

foundation, such as an extended HBM, could help guide the development of more effective health campaigns.

Mass communication and social marketing efforts have been used by health educators to address both the disparities in birth outcomes and improved pregnancy health in general. Broad campaigns for prenatal and perinatal health are frequently targeted to the populations where disparities are present – such as promoting folic acid consumption in Hispanic communities in cities with large Hispanic populations (Alcalay, Ghee, & Scrimshaw, 1993; Mackert, Kahlor, Silva, & Padilla, 2010). Targeting health campaigns is an effective way to reach intended audiences – and tailoring health messages refers to even more personalized communication (Kreuter & Wray, 2003; Rimer & Kreuter, 2006). E-health and database-driven social marketing has allowed for important health messages to be tailored down to the individual level. Research has found this type of communication is highly effective in promoting health behavior change (Krebs, Prochaska, & Rossi, 2010). It is important to note that tailoring messages is often expensive – and targeting messages to communities can produce positive outcomes while still being cost-efficient.

Mass-mediated communication, such as television and radio, can influence the behaviors and decisions that a woman makes during the prenatal and perinatal phases. Public health campaigns delivered through mass media channels have been crucial in disseminating important messages related to pregnancy health, such as not smoking or binge drinking. They have also been effective in the adoption of healthy postpartum behaviors, such as breastfeeding or putting an infant to sleep on its back. These

campaigns, along with interpersonal communication between family and healthcare workers, are thought to have contributed to the reduction in infant mortality in the United States. Such findings are consistent with other research outcomes that suggest mass communication can influence the behaviors taken up during the prenatal and perinatal phases. Messages in advertisements or health brochures often spur interpersonal discussions between spouses and family members (Valente & Saba, 1998).

Less traditional forms of mass media, such as online sites and e-health applications, are also trusted sources of information during pregnancy and postpartum times. Both women and men go online to look up pregnancy health information and health information for their new baby. Applications which can be downloaded to cell phones, computers, or tablets – such as Text4Baby and MyPregnancyToday – are gaining prominence. These applications offer reminders and helpful updates for pregnant women.

Given the investigation of adding a construct to the HBM, the following research questions guided this study and could strengthen future health communication campaigns and research where applicable:

RESEARCH QUESTIONS

R1: How does the relative importance of perceived benefits, barriers, susceptibility, and severity influence people, if at all, when considering the health behavior of others? What would be persuasive cues to act?

This research question is significant because individuals may feel one way about their own health, but differently about the health of others close to them. An ongoing study on

the role of men in prenatal and maternal health reveals that men often think about their babies/children as more weak and fragile than themselves, and therefore more susceptible to illness (Mackert, Guadagno, Donovan, & Whitten, 2015; Mackert et al., 2016). Health promotion campaigns could be strengthened by the findings of this research question. Based on this and ongoing research about improving prenatal health, a second research questions was proposed:

R2: How do individuals think about the health of others in the context of pregnancy?

Finally, an overarching research question guided this study:

R3: Could the HBM be applied to thinking about health decisions for others?

This research question was the basis for this study and an important one to explore given the fact that many health decisions are made together by family/social units. It's also worthy of investigation because individuals often make health choices for others who cannot make them themselves.

Chapter 3: Methods

APPROACH AND PERSPECTIVE

Given the early stage of inquiry on the expansion of the HBM, a qualitative approach was chosen for this project. Qualitative research can enhance understanding of phenomena and provide rich context to human events (Austin & Sutton, 2014). Strauss and Corbin (1998) illustrate that qualitative research is best used to explore areas about which little is known. Miles and Huberman (1994) indicate that a qualitative approach can: (a) confirm previous research, (b) provide more in-depth detail about what is already known, (c) help gain new perspective, and (d) expand the scope of an existing body of research. Finally, it can also aid in the development, refinement, or extension of theory (Sofaer, 1999) – which was the ultimate goal of this investigation. A qualitative framework was, therefore, a good fit to undertake this work. Within this framework, a phenomenological perspective helped explore the experiences and feelings of how participants thought about the health of others and would make decisions on others' behalf (Starks & Brown Trinidad, 2007). This perspective was appropriate for this study because its' aim is to uncover experiences and meanings and "to capture as closely as possible the way in which the phenomenon is experienced within the context in which the experience takes place" (Giorgi & Giorgi, 2003, p.27).

Guided by Donovan, Miller and Goldsmith (2014), in-depth interviews (IDIs) were selected to examine the proposed research questions. IDIs are used extensively in health communication research and are a natural fit for delving in to what people think, feel, and experience. When well-designed and well-executed, IDIs allow room for the

participant to feel comfortable and to elaborate to achieve clarity. Exploring the possibility of adding an outward-facing construct to the HBM is not easily done by large, quantitative surveys as they would not allow for a complex understanding of how one would/would not use the HBM in these decisions. Donovan et al. detail a strength of IDIs as follows:

> With interviews, investigators can follow unexpected leads and report on the creativity that people display in their health communication strategies—behaviors and broader theoretical principles that they might not have thought to include in survey or experimental designs (p.32).

It should be noted that although qualitative interviews are often used in health communication research, there are limitations surrounding the method. The first is that participants self-select, meaning they *actively choose* to be part of the interview – this could leave out the 'voices' of those who may feel uncomfortable in an interview setting, or in a discussion surrounding sensitive issues (e.g., reproductive health). The second is that the role of the interviewer may have an unintended effect on the participant. The verbal and non-verbal communication of the interviewer may encourage the participant to only share what it deemed acceptable or interesting, leading to biased data (Austin & Sutton, 2014; DiCicco-Bloom & Crabtree, 2006). Donovan, Miller and Goldsmith (2014) acknowledge and address these drawbacks by explaining the researcher should follow best practices of establishing genial rapport with the participants, remaining neutral, using plain language, and allowing for recalibration without leading during the conversations (e.g., asking "How did that make you feel?" vs. "Did that make you feel

upset?"). These best practices were followed during the development and implementation of the IDIs for this study.

PRELIMINARY DESIGN

An initial semi-structured interview guide was developed using past research done on the measurement of HBM constructs (Bond et al., 1998; Janz et al., 2002; Mattson, 1999; McClenahan et al., 2007). The primary investigator and her supervisor for the study traded notes until a preliminary list of questions was established. The questions sought to operationalize the HBM constructs in ways where the self was not the intended subject. Table 1 illustrates the HBM constructs and the corresponding example prompts that were developed to explore the research questions.

Health Belief Model Construct	IDI Questions
Perceived Susceptibility & Severity	○ Are you worried or fearful that your family or friends will become really sick? ○ Do you worry more about diseases that are really serious, like cancer, than ones that are less serious such as a common cold? ○ Do you feel that others in your family are more at risk for getting a disease than you are? Why/why not? ○ Do you feel that luck or fate plays a role in the health of others?
Perceived Benefits & Perceived Barriers	○ What are some of the pros and cons of being involved in other people's health/healthcare? ○ Do you think it can be really hard to be involved in the health of others?
Self-Efficacy	○ Do you feel that your actions can help ensure the health of others? How? Do you feel confident about being involved in others health?
Cues to Act	○ Is there anything that can motivate you to be more involved in the health of others? ○ What if your partner asked you to be involved? ○ What about if the doctor asks you to help? ○ What if you saw TV ads to get involved in your family's health?

Table 1: Constructs and Questions

The preliminary interview questions were piloted for relevancy and clarity with a group of five graduate students at The University of Texas at Austin. For the student's convenience, the session was treated like a focus group versus one-on-one interviews and lasted approximately 90 minutes. The group consensus was that the prompts were clear

and understandable. One student suggested that the participants should provide an example of a situation where they would take someone to a doctor for something that the participant would not go for on their own. This addition was reflected in the final interview guide. The students did not receive an incentive for their participation in the pilot focus group.

PARTICIPANTS AND SETTING

A total of 21 adult participants were recruited for this study. Table 2 provides full demographics of the sample. An in-depth, semi-structured one-on-one interview was conducted to explore potential themes in a confidential atmosphere. Interviews took place in either the investigator's office or a small room at a local nonprofit health clinic. To gain a variety of perspectives, two distinct populations were sampled: 1) members of the local community and 2) graduate students from The University of Texas at Austin.

The first set of participants (n=8) were recruited through a local, nonprofit, Federally Qualified Health Center (FQHC) that operates in Central Texas. The clinic serves approximately 10,000 patients per year, the majority of whom are Hispanic (75%), female (72%), and at or below the federal poverty line (74%). Their current patient population features a roughly equal split between English and Spanish as a preferred language. Clinic staff directed potential participants to the investigator. In order to be eligible, participants had to be aged 18 or older. The interviews were done primarily in English, however, some participants used phrases in Spanish during the discussion. The investigator has a conversational understanding of Spanish and was comfortable with the

mixed use of language. Community interviews took, on average, 30 minutes to complete and participants were given a $5 gift card to a local grocery store as incentive.

A second group of participants (n=13) were recruited via snowball, non-probability sampling from The University of Texas at Austin. All graduate students aged 18 or older were eligible to participate in the research. The interviews were done in English and took, on average, 25 minutes to complete. Upon completion, each participant was given a $5 gift card to Starbucks as incentive.

	All Sample	Graduate Students	Community Members
Gender			
Male	43%	54%	25%
Female	57%	46%	75%
Age			
Average age	32.2	26.3	41.9
Lowest age	21	21	25
Highest age	61	36	61
Ethnicity			
White	43%	31%	63%
African American	5%	8%	--
Hispanic/Latino	29%	23%	38%
Asian	24%	38%	--
Children			
Yes	10%	--	75%
No	90%	100%	25%
Future Children			
Yes	57%	84%	12%
No	38%	8%	88%
Unsure	5%	8%	--
Information Seeking			
Text	100%	100%	100%
Social Media	90%	85%	88%
Email	100%	100%	100%

Table 2: Sample Demographics

Approval by the Institutional Review Board at The University of Texas at Austin was obtained prior to the study. All 21 participants were provided appropriate consent forms (Appendix B) prior to participating.

DATA ANALYSIS

A semi-structured guide was used during the interviews so that participants could generate their own narratives while the investigator could keep the interview on point. Data collection ceased when theoretical saturation was reached. Theoretical saturation is, in a sense, the point of diminishing returns in qualitative research – the notion that as the study progresses, more data does not necessarily mean new information or additional light shed on the issue under investigation (Glaser & Strauss, 1967; Strauss & Corbin, 1990). As a very general rule of qualitative research, adequate sample sizes range from 8 – 60 participants (Creswell & Plano Clark, 2007; Morse, 2000).

All interviews were conducted in person, audio recorded, and then transcribed verbatim by the investigator. After each interview, the principal investigator also typed field notes to keep a record of the nuances of each conversation. Themes and patterns were identified through thematic analysis. This type of analysis is recursive and iterative in nature – the investigator is rigorously involved with the familiarization of the data, data coding, theme development, and revisions (Creswell & Plano Clark, 2007; Glaser & Strauss, 1967). Inductive thematic analysis is commonly used in the social sciences, particularly when the data is not meant to fit in to preexisting theoretical structures, but rather to delve in to how people perceive, feel, or experience certain situations (Morse, Barrett, Mayan, Olson, & Spiers, 2002; Strauss & Corbin, 1990). Although the structural model of the HBM was the basis for this investigation, little is known about the proposed addition (an outwardly-facing construct), making an inductive approach more appropriate (Braun & Clarke, 2014; Strauss & Corbin, 1990). Thematic analysis involves an identification of themes through thorough reading and re-reading of collected data, which

leads to pattern recognition within the dataset. This analysis has been recognized as a useful approach, particularly for applied research surrounding health (Braun & Clarke, 2014).

For this study, each transcript was pared down to an analytic memo that summarized the contents of the interview. Next, succinct labels, or codes, were assigned to identify information relevant to the research questions. The emerging codes yielded patterns in the data and allowed for further analysis of broad, recurring themes (Strauss & Corbin, 1990). One example of this is this is how topics such as "thinking about my health more when others around me are sick" and "contemplation that I could have done more for others' health" were rolled up in to the broad theme of "Reflection". Emergent themes from this study are detailed in Chapter 4. A discussion of theoretical and practical implications for health communication is given in Chapter 5.

Chapter 4: Results

Findings are organized by the research questions and pertinent themes that emerged during the process of interviewing participants and analyzing the data.

R1: How does the relative importance of perceived benefits, barriers, susceptibility, and severity influence people, if at all, when considering the health behavior of others? What would be persuasive cues to act?

This initial research question examined four constructs of the current HBM. Recall that perceived susceptibility along with perceived severity often can be thought of as an overall "threat." These two constructs are individual perceptions on the left-hand side of the model, or the 'input' side, and are sometimes seen as independent variables. On the 'outcome' side of the HBM, the likelihood of taking action is thought of as a dependent variable – with the perceived benefits minus the perceived barriers influencing the outcome, or the adoption of a particular health behavior. The first research question investigated the potential agency these four constructs have in how individuals think about the health of others.

PERCEIVED SUSCEPTIBILITY

Perceived susceptibility is the individual's subjective assessment of risk of developing a particular health-related problem. For this study, interview questions were designed to explore how participants felt about the susceptibility of others close to them. The questions below guided this portion of the interview. The participants could expound on the prompts and their answers could lead to further discussion.

- Are you worried or fearful that your family or friends will become really sick?
- Do you feel that others in your family are more at risk for getting a disease than you are? Why/why not?
- Do you feel that luck or fate plays a role in the health of others?

"I Worry for My Family"

The notion of worrying about immediate family and their susceptibility to certain health problems emerged across both the community participants and the graduate students. Generally, respondents felt that their family or close friends were more susceptible or at risk to getting sick or coming down with a serious illness than they themselves were. The two most common explanations were genetics (often used interchangeably with heredity in the interviews) and lifestyle choices.

Respondents felt that family genes and heredity made those close to them more disposed to getting sick – though the susceptibility did not necessarily seem to extend to themselves at the current time. When probed to go deeper in to this dichotomy, age seemed to play a role. Some felt the older their family members got, the more likely they would be to present with a disease that was latent in their genetic makeup – although they did not feel particularly threatened themselves. A male participant explained:

> I think the age thing is the biggest right now, like for my parents. Like, from a genetic perspective, we share the same genes so maybe we have the same level of risk for diseases [that are hereditary], but I'm in my 20s and my parents are in their 60s. If something is genetic, like heart disease, it'll probably come out later.

One respondent felt if he were to get this disease at an older age, medicine would be advanced enough to cure or help it. Interviewees also discussed family histories of cancer, lupus, and other diseases and were concerned that these types of illnesses could

surface among family members. A 22-year-old male graduate student explained, “We have a family history of Tay-Sachs, so yeah, I’m worried that it could pop up in future generations.”

Although genetics were of concern to many of the respondents, the lifestyle and choices of others close to them appeared to be the more pressing issue when assessing susceptibility to health problems. Concerns surrounding weight issues, healthy eating, diet, exercise, and smoking were all discussed as reasons participants felt their loved ones were more prone to getting sick. Family and friends’ poor eating habits and being overweight were common topics. A community member responded, “People don’t care about what they eat. My family is careless when it comes to eating. I think it’s dangerous because that’s how people get really sick.” A graduate student also shared, “My family does not eat well at all. They’re more at risk for heart disease than I am. I eat healthy and I work out.” This compare and contrast with regards to how the participant’s diet was healthy and how their family/friends’ diet was unhealthy lead to a thought that others were more at risk for getting sick.

There also seemed to be a high level of perceived susceptibility when family and friends had poor lifestyle choices, such as smoking or not exercising. “If I see my friend smoking, I’m going to ask him to stop. It’s bad for his health and it’s bad for other people around him. There is a direct link to that [smoking causes cancer],” a male graduate student stated. A female student pointed out that her parents were sedentary and that lifestyle could make them susceptible to sickness. She explained that she tried to remind them to exercise by walking a little each day. Another female respondent stated, “I know

this isn't nice to say but my friends do not work out at all. How can they be as healthy as I am? I work out and cook my own healthy meals at least four to five times a week."

Fragility and Weakness

The idea that others are more fragile, weak, or have compromised or underdeveloped immune systems and are therefore more susceptible to diseases was a key finding of this investigation and one that will also be discussed with regards to subsequent research questions. All 21 participants explained they felt babies were more susceptible to diseases because their immune systems were fragile and not fully developed. They thought about the health of a baby differently than how they thought about their own health because of this perceived vulnerability. A male community member stated, "Of course babies are weak and they can get sick real quickly, especially when they are real young. As they get older then they become more resistant." This was in contrast to how participants felt about their own immune systems. A male graduate student responded, "I know my own health. I know that I don't get sick often and I'm a healthy adult. Babies and kids aren't like that. Their immune systems aren't strong."

Participants also discussed the other end of the age spectrum – the elderly – with the same higher level of susceptibility. They felt that the elderly are frail and more prone to getting sick or injured than they themselves. "Babies and old people are weak. Adults usually aren't unless they're really sick," one community member said. A 20-year-old female graduate student believed the elderly are more susceptible to illness than she is

and explained, “I would not trust my grandmother to take care of herself. She is so old and frail. Very vulnerable.”

Luck and Fate

Luck and fate will be discussed more thoroughly in a subsequent section, but the concepts are also related to the participants’ perceived susceptibility of others health. When asked the questions about luck and fate with regards to susceptibility, participants were split in their responses and differentiated between what is ‘luck’ and what is ‘fate’. There was a lens of probability associated with luck, where respondents felt like probabilities of someone getting a rare disease were low but if it did happen, that event would be considered very unlucky. However, luck did appear to have more of an influence on how participants felt about others’ susceptibility to illness. One respondent described:

> I think luck can play a role in making people more vulnerable to diseases. Like if someone is unlucky enough to have to live in an environment with air pollution or something like that, it may trigger illnesses, but that is not necessarily someone’s fate, you know?

With regards to the idea of fate and susceptibility, few participants felt it played a major role in others’ vulnerability to illness. There was a common belief that lifestyle choices were much more influential than the idea of ‘fate’. A female community member explained, “I think my dad is at risk because of high blood pressure. That’s not his fate though, it’s just being unhealthy.” However, despite fate not being a commonly discussed influencer of illness, one respondent felt that fate played a role in the major, serious diseases like cancer but not in the less-serious sicknesses like a flu. She explained,

"People can do things to prevent, like, the flu. But generally I think if someone is going to get a serious disease like cancer, it's probably up to fate. There's not much you can do."

PERCEIVED SEVERITY

In the HBM, perceived severity is the subjective assessment of the seriousness of a health-related problem and its potential outcomes and consequences. Perceived severity refers to beliefs about experiencing the health problem (e.g., pain, morbidity, and mortality) as well social impacts of the health problem (e.g., ability to work, effects on relationships). Participants were guided by the question following questions and were encouraged to describe their reasoning:

- Do you worry more about diseases that are really serious, like cancer, than ones that are less serious such as a common cold?
- Do you feel differently about serious diseases? What about less serious ones?

Responses to this question were generally divided and, like perceived susceptibility, the idea of probability was brought up multiple times. Participants felt concerned about serious diseases but acknowledged the likelihood of those happening to their family and friends was low. There was a belief that cancer is a very serious illness (that is also hereditary) and that participants would be extremely worried if someone close to them was diagnosed with it. One graduate student explained, "The more serious diseases like cancers, heart disease, and stroke would cause me to worry more because they are associated with being fatal. It's harder to bounce back from those types of things."

On the other hand, participants felt like the less serious illnesses were more common but still something to worry about, particularly in the context of weak immune systems in babies and the elderly as described above. The level of concern with 'less serious' diseases seemed correlated to the age or fragility of the other person. A male respondent stated, "I wouldn't be worried if I got a flu or cold but I would be if my parents came down with it. The flu is usually what does older people in at the end, it can turn in to pneumonia. So for me it wouldn't be serious, but for them it could be."

BENEFITS AND BARRIERS

Perceived Benefits

As posited by the model, the individual's perceived benefits to a particular health behavior must outweigh the perceived constraints or barriers to taking action. The following questions guided discussion on perceived benefits and barriers:

- What are some of the pros and cons of being involved in other people's health/healthcare?
- Do you think it can be really hard to be involved in the health of others?

When asked about the positives of being involved in making health choices and decisions with (or for) others, most respondents stated they wanted those close to them to be happy and healthy. The perceived benefit of getting involved in others' health was that potential for others to be healthy and live longer, higher quality lives. A participant said, "When you have a stake in the health of others, you care about them and want them to live longer and be in good health. This increases your own happiness, too." The idea that having family and friends be healthy increases ones' own happiness and well-being was

brought up by multiple informants. Some respondents acknowledged that it was their duty to be involved in the health of others, especially when dealing with children. “It is a benefit, I guess, but it’s also kind of the law that I take care of my child,” said a community member – “I want what’s best for them”.

Perceived Barriers

Research indicates that the constructs of perceived benefits and barriers are the most important in the HBM. Recall that the construct of perceived barriers is often the best predictor of an individual performing a certain health behavior (Janz & Becker, 1984; Janz et al., 2002). Examples of barriers are physical obstacles, such as distance, accessibility, and financial resources, and also psychological obstacles, like anticipatory discomfort, or embarrassment. A key finding is that participants were able to define and expand on more barriers to getting involved in the health of others than they were able to give benefits, which will be examined further in the discussion chapter.

Nagging

Consistent with literature surrounding social support, communal coping, and shared decision-making in health, the fear of being a “nag” was frequently discussed as a barrier to being involved in others’ health (Bottorff, Robinson, Sullivan, & Smith, 2009; Burns et al., 2015; Robinson, Bottorff, Smith, & Sullivan, 2010; Shoham, Rohrbaugh, Trost, & Muramoto, 2006). There seemed to be a line between what is considered caring and concerned and what is considered being nosy, nagging, or overbearing – and the desire to stay away from conflict was thought to be a barrier to involvement. A female

graduate student ruminated, “What if people won’t accept your help? Then you become a nag, you’re nosy and annoying.” A male student echoed this perceived obstacle and explained, “I think it could lead to a possible conflict with others. If you’re constantly up in their business about health – do this, do that, don’t eat that. You’re going to get under their skin.” However, one female graduate student determined an appropriate situation to “nag” someone would be to remind them to take daily medicines if someone cannot remember or has a difficult time doing so. In this instance, she equated being a ‘nag’ with caring. “Nagging my mom to take her pills on time, I don’t care if it’s nagging actually…” she responded.

Bad Habits

Another perceived barrier to being involved in the health of others were the individual habits of friends and family members. Participants seemed to feel that routines and lifestyles could be so entrenched in others that it could be nearly impossible to break-through to them. Examples of this were similar to the lifestyle choice examples found when discussing perceived susceptibility – e.g., unhealthy diet, not exercising, smoking. “People are really stubborn,” one community member stated. “It’s hard to break people’s bad habits. They tend to go back to them over and over again.”

Circumstances were often lumped in with habits in responses – for example, living in a place that has little access to healthy foods made people get in the bad habit of eating poorly. There was a sense that habits and circumstances were vicious cycles for their friends and close ones, and that it would be very difficult to intervene in these

situations. A female graduate student told a story of breaking her father's cigarettes and throwing them in the trash so he would stop smoking – this tactic did not work, she explained, because the habit/addiction of smoking was too great to overcome. "It can be really frustrating," she stated.

Closeness of Relationship

The closeness of the relationship between the participant and others also appeared to influence perceived barriers to being involved in their health. In the responses, a distinction was made between immediate family members, relatives, and friends. There was an opinion that the more distant the relationship was, the greater the barrier to being involved would be. A male participant described:

> Honestly, I really don't think it's my responsibility to make sure my friends are healthy, there's a time cost with worrying about other people who aren't that close to you, that are just friends. I can't invest that much. But, it would depend on the relationship. If it was my wife, or someone really close that you're with every day, then it's different.

A female respondent explained that not living together would be a barrier to being involved because her control over the situation (e.g., cooking healthy meals) would be limited. Another male respondent said, "Let's face it. It depends on how much I care about them."

CUES TO ACT

Cues to act are noted as a necessary construct to prompt behavior change as demonstrated in the HBM. Cues can be newly-acquired information regarding health issues, or can be simple reminders. These cues can be physical events – such as the self

falling ill, or they can be external, such as a family member becoming sick. This construct also encompasses external forces such as receiving cues from healthcare providers, from mass media, product warning labels, teachers, etc. Since this construct of the HBM is often (but not always) linked to 'outside' cues, the following questions guided this portion of the interviews:

- Is there anything that can motivate you to be more involved in the health of others?
- What if your partner asked you to be involved?
- What about if the doctor asks you to help?
- What if you saw TV ads to get involved in your family's health?

Motivation

Motivations to be involved in the health and health decisions for others were found to be similar to the perceived benefits of being involved. These included wanting friends and loved ones to live long, healthy lives – which in return would be self-benefitting because the individual would gain happiness from this. One female community member stated, "It would motivate me because I want my family to be there for me for the big things, like having a wedding, having kids and stuff like that." Wanting others to be well was a topic that was consistently discussed with regards to motivation.

Another topic related to the question regarding motivation was the idea that an individual could be a role model to their family and friends – that their own behavior could influence others seemed to spur enthusiasm and motivation. A male graduate student describe this as follows:

> I think my own health behaviors, like lots of behaviors, can give people a frame of reference outside of themselves. That they can look to you and see you're

> doing something healthy and follow along. I think people like to feel like role models.

Reflection

Another cue to act was described as overall 'reflection', or thinking about the health of others when people around them get sick. Respondents described that they thought more deeply about the health of their family and friends when they themselves were reminded of an illness or disease. Essentially, the triggers that the HBM posits will remind people to change their own behaviors can elicit feelings and concerns for the health of others. A member of the community explained, "Those commercials for the little kids that have cancer, it makes me think that could happen to my own babies. You know I want to get to the doctor and get them checked out right away to make sure."

Contemplation that participants could have done more for others' health appeared to be a cautionary reminder to act as well. An informant said that she did not want a family member or friend to get so sick that it could not be reversed. She explained she would feel sadness in thinking she could have done more to help prevent it while she still had the time. She stated:

> Sometimes I stop and contemplate how I'm so busy with school right now. I have no time to be really involved with other people, like, even my family. My mom has diabetes and she manages it okay for now, but what if there are things I could be doing to help more, but I just don't have the time? What if it gets worse when I could have been helping now?

Doctors Know Best

With regards to the construct of cues to act, research indicates that doctors or healthcare providers are often the gatekeepers of information and trusted motivators to take health behavior action (Chen et al., 2011; Jirojwong, Dunt, & Goldsworthy, 1999; Reiter, Brewer, Gottlieb, McRee, & Smith, 2009). Findings of this investigation are consistent with prior research that indicates doctors can be powerful forces of recommendation, even when thinking about the health of others. Respondents used words such as "most persuasive" and "they are the experts" when discussing cues to act on behalf of others. All but one respondent stated that if a doctor asked them to be involved in a relative or friend's health or healthcare, it would be the largest motivator for them. A male community member explained, "If I heard it from a doctor, that I needed to be involved or that I needed to do something to help others, I would listen. They are the experts. They know more about health than me."

In addition to feeling as though doctors are the authorities, participants also noted the level of severity may be greater by the time a doctor is asking them to be involved. In other words, if a doctor were to ask an individual to take action for someone else, not only would it be a meaningful trigger, but it would also resonate as more serious or urgent. A student explained, "To me, if a doctor asked me to be involved it would be a big deal. It would kind of imply that things are getting serious." Another student echoed this sentiment by saying, "Having a doctor ask me is a big deal, they're saying that they don't trust that this other person can't take care or do it themselves." A community member stated, "Doctors don't usually do that right? So then you know something is serious if they ask."

In the hierarchy of persuasiveness, having another person directly ask an individual to be involved in their health seemed to 'rank' below having a doctor ask. While this narrative was still considered serious and motivating, participants generally did not feel as though it would incite as much motivation as the doctor asking would. "Having a doctor ask or tell me to be involved would be a little more intense, but having my mom or dad ask me would also be serious because they don't ask for help," one student explained. Another informant described that it depended on the level of seriousness, "If it's just a diet change or eating healthy together, then yeah, having my partner ask is motivation enough."

Although respondents generally said doctors may be more persuasive, this should not discount the impact of having others directly ask an individual to be involved – particularly if the relationships are very close such as a spouse. Informants felt that a doctor asking and another person asking were both important motivators to being involved, but there was a perception that the two sources were different – that a doctor took on more of an authority role whereas a spouse or friend was asking because they trusted the individual enough to do a good job.

Lastly, participants were asked about potential cues from media such as advertising, social marketing, news, films, etc. Findings regarding the impact of these cues on motivation were mixed – although media was consistently 'ranked' last in terms of persuasiveness to be involved. A male informant explained, "No. This wouldn't influence me. I tune out TV ads and stuff. Even if something got through it would never be on the same level [as a doctor or relative/friend]." Another male graduate student said,

"TV and stuff could enter my subconscious to be involved. Like those commercials that say "Be a dad today!" maybe get in to people's subconscious. Maybe if you shower me with statistics it will creep in?" It's important to note that participants *did* discuss media at certain times outside of being explicitly asked – such as recalling the St. Jude's commercials for children with cancer. However, in general, the informants felt like media cues could put being involved in the health of others at the *top of the mind*, but most did not reveal these cues would be particularly motivating.

In the case of media, it is worth noting that respondents may have felt differently about receiving cues from the news versus other sources. Hearing of a disease outbreak or scare, such as Ebola, was discussed as a potential motivating factor to thinking about the health of others. A community informant explained, "You listen to the news and hear all these bad stories about things happening to people, little kids. That could make me want to be involved." A student described the time she read a news article on how vaccine preventable diseases were popping up in some U.S. cities again. "When I read that I was shocked. People aren't getting their kids vaccinated and now these old diseases are back. That would make me motivated to do something. Go to the school system."

SELF-EFFICACY

The construct of self-efficacy was added to the HBM in the 1980s and refers to the belief that one can successfully execute the necessary behavior required to produce desired outcomes (Bandura, 1986). In the model, self-efficacy is considered the confidence in one's ability to perform and maintain a recommended health behavior. The

individual must possess the confidence to overcome perceived barriers and to maintain the recommended behavior in order to reduce a health risk. Participants were asked if they felt confident in that their actions may help ensure the health of others. Again, it is important to note that self-efficacy in this context does not mean the participants felt like their actions could *actually* change the behaviors of others, but rather if they felt confident in their abilities to try, or to make decisions for others if need be.

Respondents felt confident in their abilities to at least be involved in the health of others – particularly when it came to being involved with those who could not take care of themselves (e.g., babies, elderly). An informant explained, "If I didn't have the knowledge to help and I wasn't confident, I would gain the knowledge somehow. I would research." The idea of being a role model, such as discussed above under "Motivation", was also brought up in the context of self-efficacy and ability to be involved. The graduate students, overall, talked more about confidence in their exercise habits and how that confidence extends to helping others (like parents) become healthier.

Despite this confidence in the ability to be involved, most respondents explained that regardless of how efficacious they felt they could be – ultimately it was up to the other person to change or modify their own behaviors. "There's only so much I can do, you know? You can't literally change someone's behaviors if they don't want to change," a respondent replied. Another participant said, "No matter how assertive you may be, it's ultimately up to the other person. It would be exhausting to be THAT involved in someone else's health choices." However, although not explicitly stated, participants did mention things they could do to ensure healthier behaviors for others – those mostly

centered on eating well, as described in other sections of the findings. A community member explained:

> Well, if I'm living with someone, especially if it were like my husband, then I'm doing the cooking. I'm the one who is making the food choices and making the meals. I can make them healthier. Then he'd be eating healthier whether he likes it or not, right.

LUCK AND FATE

The literature review provided in the second chapter outlined concepts of locus of control and fatalism. While the two are not identical, there are prominent similarities between them. Individuals who believe their health is controlled by outside factors such as luck or fate have an external locus of control – and may be considered fatalistic. These individuals feel that there is little they can do to avoid an illness if the factors are beyond their control. Conversely, individuals who believe their health is determined by their own behavior are viewed as having an internal locus of control. An internal locus of control is associated with a belief that the person can influence their own lives more than external factors can.

With regards to the findings of this study, thinking about the health of others, luck and date were touched upon under the theme of perceived susceptibility. When asked directly if luck or fate had anything to do with the health of others, respondents had mixed answers. Some felt that luck was a factor in others' health – one male informant stated, "I think sometimes luck could play a small role. You hear those stories about a person smoking for their entire life and never getting sick. But it doesn't play a big role. Lifestyle is more influential." Another respondent felt as though luck or fate weren't the

right words to describe how he viewed things, he explained, “I wouldn’t use the words luck or fate, but maybe the word ‘unknown’. We’re limited in medicine and science right now. Like we can’t know exactly which cell may cause a cancer, so it may come off as luck now, but only because we don’t know yet.” However, some respondents did present a more external locus of control, or fatalistic, answers. A female graduate student said, “I believe that things happen because they were meant to happen anyways. So I believe if something bad happens, then there’s nothing you could have done to stop it. It would have happened anyways.”

To further explore fatalism, a five question, 7-point Likert scale survey was given to each participant at the end of the interview. The scales were adapted from previous research done by Shen, Condit, and Wright (2009) with regards to fatalism and health. Overall, the participants generally felt they were in control of their own health versus outside forces (M=5.1, SD=1.2). The sample overwhelmingly agreed with the notion that “We all must try to persevere and overcome adversity,” (M=6.6, SD=0.7). There were no significant differences with regards to the community members versus the graduate student participants. Table 3 provides full results of the fatalism scale results.

Item	*M* (SD)
If someone is meant to have a serious disease, they will get that disease.	3.9 (1.8)
Health is a matter of luck.	2.1 (1.2)
We all must try to persevere and overcome adversity.	6.6 (0.7)
I am in control of my health.	5.1 (1.2)
Other people play a big part in whether I stay healthy or become sick.	3.5 (1.8)

Table 3: Fatalism Scales

CULTURE

Although questions or prompts regarding culture were not explicitly asked, the topic did come up in three separate interviews. When asked in general how participants felt about the health of others, a male graduate student responded:

> This is common in Asian cultures. We don't care for ourselves as much as we care for health of other people. We kind of assume it is a sacrifice of the self. If I see my parents or cousins sick, I worry more. I have to let them know to care for their health.

A male community member also discussed culture when thinking about the health of others, "You know us Mexicans – we are caring for everyone and everything in the family. The kids, the grandkids, the cats, the dogs, the old grandma across the street. We worry about health a lot." Another graduate student explained differences in the healthcare systems of the United States and Germany.

> In Germany where I'm from, people will go to the doctor for anything. It's the culture and how the health system is set up. But here in the US, I wouldn't go for a flu or cold. The doctor will look at you like "why did you just come in for a

cold?" It's also a financial burden here. But I would take others to the doctor here in the US, especially if it's like my son.

R2: How do individuals think about the health of others in the context of pregnancy?

As discussed in previous chapters, the overarching goal of this study was to explore how individuals feel about the health of others and if those perceptions lined up in any way with the Health Belief Model. The specific lens of the study, prenatal health and pregnancy, materialized from the principal investigator's ongoing research in to improving maternal, infant, and child health outcomes – particularly by exploring males' agency in pregnancy health. An ongoing study on the role of men in prenatal and maternal health revealed that men often think about their children as more fragile than themselves, and therefore more susceptible to illness. They also think that pregnancy is a time where a woman should be extra careful and healthy, and that they themselves could play a positive role in having a healthy mother and baby dyad.

This prenatal lens fits in to concept of "walking through" the HBM for behaviors where the self is not the intended subject. Therefore, R2 was proposed. The participants were asked the same questions regardless of the gender they identified with. For lay-purposes, the term 'pregnancy' was used, however, the questions and discussions naturally evolved in to talking about perinatal health – from pregnancy to deliver, infants, and young children. The following questions guided this portion of each interview:

- Would you take a baby or child to the doctor for something that you may not go for your own self? What is an example of a situation where you would do that?
- If your wife or partner is pregnant and the doctor tells her to change her diet, would you change yours as well? Why/why not?
- Do you feel that it is the responsibility of the mother-to-be to make sure the baby is born healthy, or is it something that both the mother and father are responsible for? Why/how so?

- If somebody close to you is pregnant, do they need to go to the doctor for regular checkups? What if they already have children?

SUPPORT

Consistent with a wide range of findings from previous research done on males, social groups, and pregnancy involvement, all of the respondents felt it was their obligation to provide 'support' to a pregnant women (Carter, 2002; Gervais, de Montigny, Lacharité, & St-Arneault, 2016; Jirojwong et al., 1999; Mackert et al., 2015; Mackert et al., 2016; Mullany, Becker, & Hindin, 2007; Sheehy, Aung, & Foster, 2016). Participants used the phrase 'support' to refer to a breadth of activities such as preparing healthy meals for a pregnant woman, taking on household chores, offering financial help, providing transportation to healthcare visits, babysitting other children, and so on. A male community member explained, "Of course it's my responsibility to make sure my pregnant wife is healthy. I have to support her so our baby can be healthy. We're responsible for another human being now. I'd do whatever it takes, whatever the doctor tells us." A female community member described how her sisters were there for her during her second pregnancy, "I will do the same for them when the time comes. They took care of me, made sure I was healthy and eating good meals." A male graduate student reflected on how he would support a future pregnant wife, he stated:

> That's a good question. I would have originally said it's the mother's responsibility, but thinking about it, there is the aspect of positive encouragement I could give, like having the right nutrition while she is pregnant. I could cook. So there is an aspect for the male support that needs to be there. Definitely.

SOLIDARITY

The theme of "solidarity" was described in many of the respondents' answers when discussing their potential role in prenatal health and healthy pregnancies. A general definition of solidarity is "unity or agreement of feeling or action, especially among individuals with a common interest; mutual support within a group" (Merriam-Webster, 2017). This theme was often discussed outside of the concept of 'support' although sometimes the two were interchanged. One male participant directly stated, "I want to motivate good behavior. I want to act in solidarity. I want to look out for poor prenatal care. I would want my wife to know that I'm in agreement with what she wants."

Many respondents felt as though it would be an act of solidarity to change their diet while a partner or someone close is pregnant. A community member responded, "If I were living with my sister and she was pregnant, I would take away some things from my diet that she couldn't eat. It wouldn't be fair to have the stuff that the doctor says "NO" to in the house." The idea of this sort of "eating alliance" came up multiple times during the data collection process. A male graduate student explained, "I would change my diet because we'd be eating together. I think it would make her feel better, too. There'd be a benefit." Another student shared this sentiment:

> I think that's the best way to make sure that change gets enacted. Because of the support I'd provide. Especially diet… you're probably eating together a lot of the times. I want to be the one who is helping to cook those meals. Practicality and helping out the other person. We all eat the same healthy things.

FRAGILITY

"I Know My Own Body, Not Theirs"

Again, consistent with prior research, all 21 participants explained that they would take a pregnant woman (or infant) to the doctor for something that they themselves would not go in for (Mackert et al., 2015; Mackert et al., 2016). Related to the previously-discussed findings of perceived susceptibility, the idea that pregnant women and babies have weak or underdeveloped immune systems was paramount. Informants explained that they knew their own body's limits – how they feel when they are sick, how long it normally takes them to recover, how to respond to the illness, and so on. They also explained that they could not know how another person felt, or the severity of the illness in an already-weakened and vulnerable immune system. This disconnect made them want to be more involved in the health of a pregnant woman or baby. A male graduate student stated, "A baby has no concept of 'health'. They don't know if they are healthy or not. I know my own body and how I feel. I can communicate how I feel." "I know that their bodies are not as strong as mine," another male participant explained. A female graduate student said, "I know that pregnant women need the flu shot. Their immune systems are comprised. So I'd be more worried for a pregnant woman. I know my immune system can combat things better."

All informants answered that they felt a pregnant woman needs to go to a healthcare provider for prenatal exams, regardless of how many children she already has. Some explained that the frequency of the visits may decrease with babies 2, 3, 4 and so on, but that every pregnancy can be different and have a unique set of issues or complications. A female respondent said, "There's so many variables now in their health. You need the experts to be checking on them. Even if it's the third pregnancy." A male

graduate student explained, “Yeah of course. I’m not an expert on pregnancy but just because one child is born healthy doesn’t mean the next ones will be.”

R3: Could the HBM be applied to thinking about health decisions for others?

The final research question that guided this study is with regards to the overall idea that the HBM could be applied when thinking about health decisions and the health of others. Given the findings detailed in the above sections, this overarching research question is best discoursed in the final discussion chapter of this dissertation.

Chapter 5: Discussion

This study was an exploration of how the Health Belief Model, a widely-researched predictive model of health behavior, could be used when thinking about health decisions for others. Few if any studies utilize the HBM in this particular way, leaving a gap in the literature about actions we already know occur – people making decisions for others' health. This examination has implications for further theoretical research, but also for health communication practitioners, public health efforts, and clinicians. This chapter will discuss a possible extension of the model and then suggestions for incorporating the findings in to practice. Limitations of the study are also presented.

THEORTICAL IMPLICATIONS

Continuous testing and adaptation serves to strengthen theory. A current gap in the literature is how the HBM may function when the self is not the intended audience for health behavior action or change. As discussed, the current version of the HBM is largely self-focused – but research shows that health decisions are often not made by an individual alone, but in collaboration with close relatives/friends and the community, and can also be influenced by the effects of mass and social media (Coleman, 1993; Duggan, 2006; Ogata Jones, Denham, & Springston, 2006; Valente, 1996). The following offers a glimpse of how the constructs may operate when the health decisions are for others.

IMPLICATIONS FOR THE HEALTH BELIEF MODEL

This reconceptualization of the HBM would explore how the HBM may work when the self is not the intended audience for health behavior action. This can generally mean making or helping others make decisions about health; the other individual may or may not be capable of making a health decision themselves.

Perceived Susceptibility, Severity, and Threat

The constructs of susceptibility and threat in the current HBM would need further review and exploration in a proposed theoretical extension. It is difficult to assess the level of susceptibility and threat that individuals feel with regards to another person and is often situational. These constructs may change depending on the other person's age – as reported by many participants in this study, individuals felt their parents and grandparents were at a higher risk for becoming sick because they were older. It also may be contingent upon other factors such as heredity and lifestyle choices. Informants discussed they feared their family and friends were more susceptible to illness because of poor lifestyles, for example, not eating well or exercising.

Previous investigation in to the constructs of susceptibility of others, particularly infants and children, reports that mothers believe their child's immune system is fragile and not fully developed – therefore they are more prone to illness and disease (Bond, Nolan, Pattison, & Carlin, 1998). This finding connected the decisions of mothers to both get their baby vaccinated as well as delaying vaccination. More recent research conducted with fathers and fathers-to-be supports the finding that an infant/child's health and immunity is often viewed as being weak and fragile, therefore making the

infant/child more vulnerable to illness (Mackert, Guadagno, Donovan, & Whitten, 2015). The results of this particular study are consistent with these findings. Participants overwhelmingly felt that the immune systems of others were fragile and weak, and therefore more susceptible to illness. Further research is needed to understand how this plays into the perception of severity and threat of illness, and if the constructs of susceptibility and severity would be of greater significance when thinking about the health of others, as these findings suggest.

Perceived Susceptibility vs. Perceived Vulnerability

Although perceived susceptibility currently acts as an independent variable, it may be sensible to view 'perceived vulnerability' as an 'input' variable in an outwardly-focused HBM. This suggestion arises from the participants of this study as well as other formative research done on men and prenatal health (Mackert et al., 2016). It can be argued that the term 'vulnerable' is much more widely-used among laypeople than 'susceptible' – and although there are subtle, yet important, differences in the two, the term vulnerable was more frequently discussed in the interviews. A sense of fragility and weak/underdeveloped immune systems was at the core of why participants viewed others (particularly the elderly and young children) as more susceptible to illness than themselves.

Research on the use of 'susceptibility' versus 'vulnerability' is limited and mostly discussed in the context of ethics in research (such as with human subjects) (Kottow, 2003). It is generally agreed that vulnerability is a broadly-applied principle and a

description of human condition (intact but fragile), whereas susceptibility is the concept of already being harmed and predisposed to additional harm (Kottow, 2003). In the case of both the current and proposed extended HBM, it may be more accurate and universally understood to use the construct of perceived vulnerability, as this implies a broader risk and is the term many individuals already use to describe overarching threats to health.

Perceived Benefits

The perceived benefit to helping others take on positive health behavior is a variable that may be directly influenced by cues to act in a reconceptualized HBM. The fact that the intended behavior will ultimately help another individual may enhance the perceived benefit of the action. There is a breadth of research that indicates positive involvement and encouragement for one's spouse or partner can improve health behavior (Burke & Segrin, 2014; Lewis et al., 2006).

The findings of this study did not yield many perceived benefits to being involved in the health of others. It is worth noting that many of the participants were young and did not indicate they were married or in long-term romantic relationships. Closeness of relationships was found to be an important factor in getting involved in the health of others – so this could have limited their responses to thinking about friendships or non-romantic family members, thus reducing the perceived benefits (e.g., friends are more distant than partners so the benefits to being involved are not as strong).

The perceived benefit that did come up multiple times in the interviews was the idea that getting more positively involved in others' health would help their family and

friends have longer, healthier lives. Participants felt that having family and friends be healthy increased their own happiness and well-being. There seemed to be a comfort in knowing that their loved ones would be around for a long time. It could be that there is an element of self-regarding 'investment' when getting involved in the health of others, similar to theories of altruism and philanthropy where individuals give to have a positive reflection of themselves, or because it provides a benefit to the self (Piliavin & Charng, 1990). This is not to imply that getting involved in the health of others is solely self-serving, but rather mutually beneficial to the self and loved one.

Perceived Barriers

In order for behavior change to occur in the current HBM, the perceived barriers must be outweighed by the benefits. The same would seem to be true when deciding to get involved with or make health choices for others. In this study, "nagging", the inability to break others' bad habits, and the closeness of the relationship were found to be barriers to involvement.

Participants felt that they may come off as nagging, annoying, or authoritarian if they tried too hard to be involved in the health of others. This is consistent with findings of previous research surrounding social support, communal coping, and shared decision-making in health choices (Bottorff et al., 2009; Robinson et al., 2010). The fear of being a 'nag' is a subjective barrier that is highly personal and dependent on what type of relationship individuals may have. In this case, positive interpersonal communication

may play a crucial role in off-setting the feeling of being bothersome. Both parties would need honest and open discussion about intentions in order to overcome this barrier.

Another barrier that was discussed was the inability to break others' bad habits, particularly surrounding diet and exercise. Informants felt like the lifestyle choices of others might be too entrenched to be changed, and that the effort would be futile. This notion makes sense when thinking about another capable adult, but further research is needed to examine if the barrier of 'bad habits' exists when thinking about the health of children or others who are not fully competent in their health choices.

Lastly, the distance/closeness of the relationship was reported as a potential barrier to being involved in the health of others. Participants generally felt as though if their relationships were distant (e.g., just a friend), it would be more difficult to be engaged. Again, this concept has been found in research on social support and health behavior change – although the results of these studies are not straightforward (e.g., online social networks can help individuals maintain healthy behaviors despite not connecting in person). However, when it comes to getting involved in the health of others, there is a sense of investment evaluation that appears to take place – the closer the relationship, the motivating being involved is. The more distant the relationship, the greater the barrier.

Self-Efficacy

The concept of self-efficacy did not seem to be of high significance in this study. It is important to note that self-efficacy in this context does not mean the participants felt

like their actions could *actually* change the behaviors of others, but rather if they felt confident in their abilities to try, or to make decisions for others if need be. The sample felt confident in their abilities be involved in the health of others – particularly when it came to being involved with those who could not take care of themselves (e.g., babies, elderly).

With regards to capable adults, there was a general feeling of "I can only do so much" when discussing the health of others. This merits additional research – the effect of self-efficacy on being involved in the health of those who are not capable of making important health decisions and those who are capable. As previously-discussed, informants felt as though poor lifestyle choices of their friends and family were too much to overcome, perhaps leading to them feeling less self-efficacious.

Cues to Act

In its current context, cues to act depends on outside influencers and information, whether it be from internal events, or from doctors, or from mass media (Mattson, 1999). In an extended iteration of the HBM, the cues to act may come from these very same sources, but they could also come from the individual who wants the person to be involved in their health. Most participants described the mere asking of another person as a motivator for being involved. This has implications for interpersonal communication and decision-making, potentially in couples counseling, medical visits with providers, or family discussions on health behaviors.

Media was not discussed as being highly influential to getting involved in the health of others, although participants did say that media cues may put others' health more at the top of mind. There is research that supports mass media (social marketing campaigns) can have an effect on recognizing medical dangers in others. For example, public health promotion campaign to get fathers involved in prenatal care and to recognize obstetric emergencies could use mass media successfully. The same effort could focus on getting soon-to-be fathers to stop smoking because it will be detrimental to the baby. This would be an example of taking on a preventative health behavior *because* of someone else. This reconceptualization of the HBM would perhaps place cues to act (especially from healthcare providers) more in the center instead of in its current location on the periphery of the model.

Optimism Bias

Although not a construct in the current HBM, the concept of optimism bias arose from the findings of this study and may be an interesting part to an extended model. When an individual perceives lower health risks to themselves than others, it is known as optimism bias, or unrealistic optimism (Clarke, Lovegrove, Williams, & Machperson, 2000; Sharot, 2011). Optimism bias in individuals has been shown to lead to underestimations of various health risks, such as getting in to a car accident, or getting cancer (Hoorens & Buunk, 1993; Sharot, 2011). Overall, respondents felt that their family and/or close friends were more susceptible to getting sick or having a serious illness than they themselves were, demonstrating a degree of optimism bias. This feeling

motivated some to want to be more involved in the health of others, but was also dependent on the closeness of the relationship (e.g., a spouse versus a friend).

It is worth noting that a level of optimism bias was found among the participants. A study that examined optimism bias in relation to the HBM found that optimism bias was a larger, more pervasive concept than the construct of perceived risk (Clarke et al., 2000). This means that individuals may apply a broader level of threat to others in general, even without having specified perceived risks. Future research should take this bias in to account when investigating how individuals make health decisions for others, as it could mean that people are already primed to think others are more susceptible to illness. Public health efforts may seek to call attention to optimism bias in campaigns – either by encouraging healthy behaviors in others who are perceived as more at risk, or by using a mix of facts and narratives to educate individuals on their own underestimated perception of risk.

PROPOSED EXTENDED MODEL

Given the above discussion, a preliminary new model structure is put forth (Figure 2). First, when thinking about health decisions or choices for others, the data suggests that variables such the closeness of the relationship, optimism biases, and the age of the other person play an 'input' role – thus, these concepts were moved to the left side of the model. These variables now have a bidirectional relationship with 'perceived vulnerability' – a broader, more commonly-used idea than 'perceived susceptibility'. However, as in the current HBM, this perceived vulnerability, along with external cues to

act, influence the overall level of perceived threat a person may encounter or feel about a health issue for others.

A new link in this extended model is the direct relationship between cues to act and the likelihood of being involved in others' health. This addition came about through the findings that demonstrated participants felt a doctor asking them to directly take action was compelling enough to do so, even if they did not fully understand the health issue. Participants also explained that having the other person (e.g., a spouse or parent) ask them directly to be involved in their health would be a motivating factor. Thus, these external cues or direct asks now have an uninterrupted association with the likelihood of taking action.

Lastly, a connection between the initial assessment of another's health issue (the first, immediate variables such as age) are linked to a cost/benefit analysis, or the perceived benefits vs. perceived barriers construct of the current HBM. This link was made because although an individual may believe someone is vulnerable to illness, the closeness of the relationship, the avoidance of being a 'nag', and other issues factored in to the weighing of the benefits/costs to being involved. For example, if an individual sees a coworker smoking, they may feel he/she is vulnerable to getting cancer, but the barriers to involvement are perceived as too high (e.g., they are not close enough) versus if the spouse is a smoker.

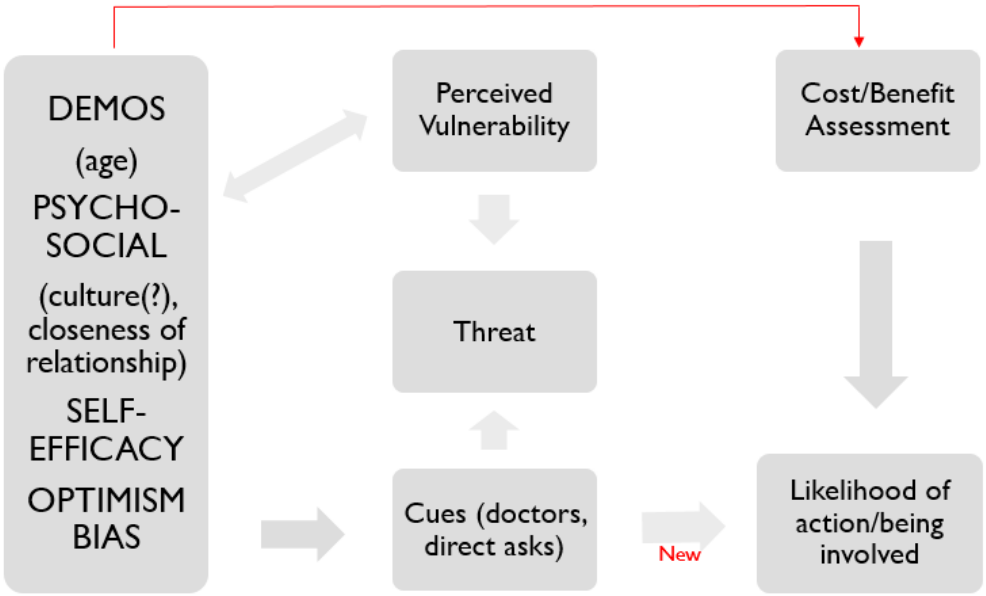

Figure 2: Reconceptualized HBM

IMPLACTIONS FOR PRACTICE

Health Communication Practitioners

Given its highly-predictive power, the HBM has been used as the theoretical framework in many health communication campaigns. The findings of this study could inform how social marketing campaigns are developed, especially when there is research supporting that the involvement of others is a positive factor in health behavior change (e.g., exercising together helps individuals lose more weight). The preliminary research guiding the creation of these campaigns would be critical, as it would be erroneous to use the HBM in its' current form and assume that the self and others have the same risks, motivations, and barriers. The findings of this research indicate that there are modifying

factors that change the way the HBM operates when thinking about others, such as closeness of the relationship, age, and optimism bias.

The continued example used in this dissertation is the positive engagement of males in pregnancy health. This is an archetypal ideation of the basis of this study because the male does not experience pregnancy, cannot 'see' the unborn baby, but yet feels a sense of responsibility and protection for both the baby and pregnant woman. Males know their personal choices can affect the outcome of the pregnancy as well.

Putting this in to practice has relied on formative research with men and what motivates them to be more involved. The findings have shown men feel financially responsible during pregnancy and are also interested in good nutrition for mom and baby. They feel that mom and baby are more susceptible to diseases because their immune systems are weakened and/or not fully developed. Taking these factors into account, a mobile application for getting men more engaged in pregnancy highlighted the importance of the male's involvement in nutrition. For example, communicating the benefits of eating healthy meals together should, in theory, be a motivator for the dad-to-be to help out with nutritious meals. Figure 3 is an example of how this is being communicated to a future dad.

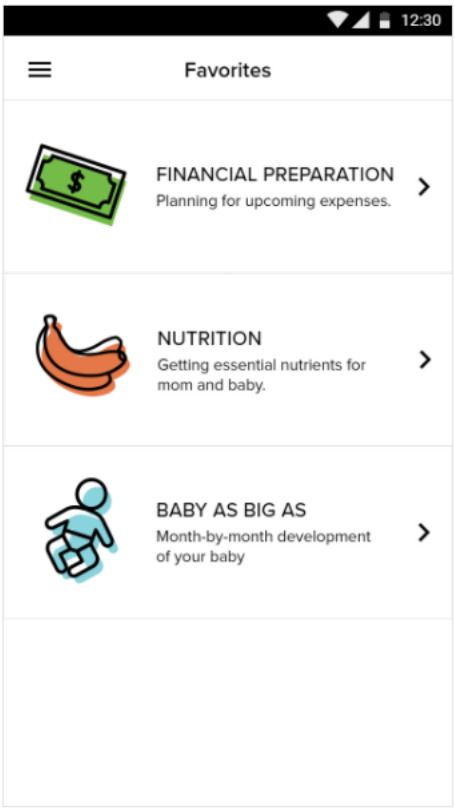

Figure 3: Fatherhood Application

Getting men engaged in pregnancy health may be considered grabbing the low-hanging fruit when it comes to using the HBM to involve individuals in the health of others. Most men are already interested in the health of their partners and unborn child, and the reported barriers to being involved may be lessened (e.g., they consider this relationship close versus distant).

Healthcare Providers

The findings of this study present several practical implications for clinicians and healthcare providers. The first is that the findings echo previous research which indicates

doctors are viewed as highly persuasive and trusted professionals. They are often seen as the gatekeepers of information and important motivators to take on health behaviors (Chen et al., 2011; Jirojwong et al., 1999; Reiter et al., 2009).

The views of the participants in this study are consistent with prior research that shows doctors can be powerful forces of recommendation, particularly when recommending behaviors for the health of others (e.g., making sure an individual adheres to medication). Respondents used words such as "most persuasive" and "experts" when discussing how a doctor would motivate them to be more involved on behalf of others. Informants also felt that if a doctor were to ask them to be more involved in the health of a family member or friend, it would signify a high level of importance or urgency.

Doctors, clinicians, and other healthcare providers should use this authority in a constructive, non-threatening manner if they believe a family or friend may play a positive role in the health of their patients. A straightforward example of this is the positive involvement of male partners in pregnancy health, as discussed throughout this dissertation. Healthcare providers in this space should make antenatal visits a welcoming environment for men and incorporate the couple's wishes in to actionable healthy behaviors during the pregnancy. This could be a 'teachable moment' for males to take on more healthy behaviors themselves, such as quitting smoking for their well-being and for the health of their family, including the unborn baby.

Shared Decision-Making

Another area of application for healthcare providers may be in shared decision-making (SDM). SDM has come to the forefront of medical care as a way for patients to become more involved and activated in their own health decisions (William, 2009). It has been described as a "meeting of experts" – where the physician is an expert in medicine and the patient is an expert in his/her own lived experience, and where two-way communication takes place. SDM has been reported to increase patients' understanding of options and to improve agreement on patients' values and choices. However, despite the ever-growing body of research that depicts SDM as a positive, it is still quite rare in practice – with time constraints and health complexities being cited as major barriers (Elwyn, Edwards, & Thompson, 2016).

An externally-focused HBM may be a useful tool in SDM – as something the physician or healthcare provider may walk through when attempting to co-diagnose with a patient or make decisions with family members on behalf of a loved one. A particular example of this would be the discharge from the hospital of an elderly parent with dementia – discussing the overall susceptibility and threat to the patient with the caregiver. Weighing the benefits of what the next facility for the parent should be (e.g., nursing home, family member's home) and then assessing barriers to these next steps might be (e.g., financial issues). Using an extended version of the HBM as a lens for training physicians in SDM may help improve communication between all parties – perhaps improving outcomes or at least giving agency to caregivers.

LIMITATIONS

This study was a very nascent exploration in to thinking about how the HBM could be utilized when the self is not the intended 'audience' for health behavior change or modification. Although the findings certainly shed light on how this could be applicable to the current HBM, this study is not without limitations.

The first limitation, as inherent with all qualitative research, is the relatively small sample that was recruited via snowball technique. Although in line with the general guidelines for sample size (Morse, 2000), there was only one participant who identified as African American and the sample skewed heavily toward young graduate students; therefore not representative. A much more robust and diverse sample would be the next steps to exploring the research questions proposed in this dissertation.

Another limitation is that the interviews were only conducted in English. Given that multiple participants were non-native English speakers, there could have been nuance missed with regards to the conversation. Though the investigator sought to minimize these misunderstandings, it is still worth noting as a drawback of this particular study. Examining this notion from a cross-cultural lens is imperative going forward, as research has indicated that the HBM operates differently across different cultures (e.g., the HBM scales have been adapted in to a Turkish version which a few tweaks of the constructs) (Gözüm & Aydin, 2004; Lin, Simoni, & Zemon, 2005).

Additionally, there seem to be some confusion in the responses of more than one participant with regards to exactly what the interview questions were asking. Participants

seem to toggle between discussing how they would help others take on healthier behaviors – and taking on healthier behaviors themselves *because* of others. Examples of this include reminding a family member to take their medication (helping others take on healthier behaviors) and quitting smoking because their partner is pregnant (taking on healthier behaviors themselves because they are concerned that the current behavior will negatively impact someone else). While both of these concepts warrant further investigation, the goal of this particular study was to assess how the HBM could be used when making health decisions for others, or helping others take on healthier behaviors. Future research must look in to how the HBM applies to taking on healthier behaviors for one's self because of other's health – as this development could lead to possibly 'killing two birds with one stone' with regards to positive health behavior uptake.

Lastly, given time and financial constraints, the investigator was the primary data analyst for this study. While quantitative research is grounded in measures of reliability and validity, guidelines indicate that qualitative research can be calculated by 'trustworthiness' (Creswell & Plano Clark, 2007; Miles & Huberman, 1994). Trustworthiness includes peer debriefing and data triangulation (e.g., multiple coders for analysis) as tactics to ensure rigor and to establish that the findings are accurate reflections of the data. Future studies on the topic of expanding the HBM must engage a team of researchers in order to warrant the quality and trustworthiness of the data.

FUTURE RESEARCH

The findings of this study present multiple avenues for future research, in both theory extension and practical applications to healthcare settings and health communication efforts.

Health Decisions for Others vs. Because of Others

A major finding of this research was that there appears to be a real difference in how the current HBM would be applied when individuals are making health decisions for others versus when they are taking on health behaviors themselves *because* of others. This concept came up multiple times in the interviews, when participants were confused as to how to respond to some of the questions (see Limitations section). Examples of making health decisions for others are abundant throughout the lifecourse, but prominent in the context of pregnancy, newborns, children, elderly parents, those with developmental disabilities and so forth. Although there is an array of research on caregiving and decision-making, only a few studies have focused on the application of the HBM in these settings – mostly on the decision to vaccinate children (Reiter et al., 2009; Smith et al., 2011).

In addition to using the HBM in the context above, participants also described how they may use the constructs to make health decisions for themselves *because* of others around them. Examples of this in previous literature include smoking cessation when starting a family and adopting a healthier diet because a significant other had to make dietary changes (Pollak et al., 2010). It is worth exploring the inherent differences

in these two contexts, and if certain constructs such as cues to act may have greater influence in either of the situations.

Cross-Cultural

Another potential avenue for research is to understand how an extended HBM would work in or among other cultures. The findings of this study are limited and not generalizable. This study was conducted in English with only a minor focus on cultural differences. The current HBM has been successfully adapted for other cultures and there is a presumption that the way individuals feel about the health and well-being of others may differ across cultures (Gözüm & Aydin, 2004). Future research could begin to look at how African American or Chinese American communities view health decisions and decision-making in relation to the HBM – there may be concepts that prove to be more of an influence in these cultures (e.g., luck and fate).

Message Development and Testing

Lastly, a practical application for future research would be to develop initial message testing for patients, caregivers, and even healthcare providers. The findings of this study, as well as previous research by the investigator, reveal that individuals assess the vulnerability of others as weak and fragile, particularly those they perceive with comprised immune systems, such as children and the elderly. Research could examine if messaging that focuses on the fragility of elderly would motivate others to 'get involved' – perhaps by sharing decisions with elderly parents or even volunteering in nursing

homes. Again, the benefits and barriers to getting involved would need to be studied in this context as well.

It would also be interesting to gain the perspective of healthcare providers on this subject. As indicated by the findings of this study, individuals view healthcare providers as important motivators to getting involved in the health of others. Healthcare providers could offer valuable insights as to when having others involved would be beneficial (e.g., medication adherence, pregnancy emergencies). They would also be able to provide the setting to test and deliver these messages.

CONCLUSION

There is a pressing need to continually test and improve theories of health behavior such as the HBM. In the age of healthcare moving toward more patient-centered outcomes, and the utilization of shared-decision making and social networks, it is important to understand how the HBM may be applied when the health behavior change or modification is for others. This is currently an understudied realm of the HBM and one that may prove to be valuable for theoretical research as well as in the practice of health communication, message design and development, and public health interventions.

The overarching goal of this study was to begin to assess the possibility of how the HBM would look when the self is not the one for whom the behavior is taken. The final research question asked**:**

R3: Could the HBM be applied to thinking about health decisions for others?

The findings of this study suggest that the HBM *can* be a useful framework when thinking about being involved in the health of others, making health decisions for others,

and making health decisions for one's self on others' behalf. Each of these events is uniquely different and this study was unable to thoroughly explore them independently. Future research should seek to take the knowledge from this study and apply it in various contexts to gain more generalizable results.

Appendix A

Thank you for taking the time to talk to me today. Do you have any questions before we start? Do I have your permission to audio record the interview? Do you approve of the consent that I just read to you? Thank you, let's start.

General Health

We are going to talk about health issues more in-depth, but for now we'll focus more on what you think about healthy living and the health of you and your family.

- Do you think about your health a lot?
- Are there certain times when you think about your health more?
- Would you say you take your health seriously? Why/why not?

The Health of Others

Ok great. Now we are going to talk about what you think about the health of others. You may have a spouse, partner, children, or extended families, or you may not, and that is ok. These questions will be focused mainly on prenatal/infant health, but you can think of those who are close to you as well (family, friends, or your future partner/children).

- We're curious about how you think about your own health in ways that might be similar or different to how you think about your family and friends' health…do you think of your own health differently?
  - Are you worried or fearful that your family or friends will become really sick?
  - Do you worry more about diseases that are really serious, like cancer, than ones that are less serious such as a common cold?
  - Do you feel that others in your family are more at risk for getting a disease than you are? Why/why not?
  - Do you feel that luck or fate plays a role in the health of others?
- Would you take a baby, child, spouse, or elderly parent to the doctor for something that you may not go for your own self? What is an example of a situation where you would do that?
  - If a wife or partner is pregnant and the doctor tells her to change her diet, should the partner change theirs as well? Why/why not?
  - Do you feel that it is the mother-to-be's responsibility to make sure the baby is born healthy, or is it something that both parties are responsible for? Why/how so?
  - If somebody close to you is pregnant, do you feel they need to go to the doctor for regular checkups? What if they already have children?

- What are some of the pros and cons of being involved in other people's health/healthcare? Let's start with pros…Okay, now what are some potential challenges or drawbacks?
  - Do you feel that your actions can help ensure the health of others? How?
  - Do you think being aware about a health condition and then taking proper action (helping someone else take action) is a good thing?
  - Do you think it can be really hard to be involved in the health of others? Why?
  - Is there anything that you motivate you to be more involved in the health of others?
  - What if someone close to you asks you to be involved?
  - What about if the doctor asks you to help?
  - What if you saw TV ads to get involved in your family's health?

Do you use any of the following?

_____ Text and mobile phone

_____ E-mail

_____ Social media (Facebook, Twitter, etc.)

Please pick the number that best describes the extent to which you disagree or agree with the sentence.

	Strongly Disagree						**Strongly Agree**
If someone is meant to have a serious disease, they will get that disease.	1	2	3	4	5	6	7
Health is a matter of luck.	1	2	3	4	5	6	7
We all must try to persevere and overcome adversity.	1	2	3	4	5	6	7
I am in control of my health.	1	2	3	4	5	6	7
Other people play a big part in whether I stay healthy or become sick.	1	2	3	4	5	6	7

Demographics

Please provide the following information about yourself:

Age: _____

Gender: ____ Male ____ Female ____ Prefer not to answer ____ other

How do you usually describe yourself?
___White
___Black or African American
___Hispanic or Latino
___Asian or Pacific Islander
___American Indian or Alaskan
___Biracial or Multi racial
___Other

Do you have any children?
___ Yes
___ No

If yes, how many? _____

If no, do you plan to have children in the future? ___ Yes ___ No

Conclusion (3-5 minutes)

Wonderful. We've definitely learned a lot – is there anything else you think we should know, something you want to add that we missed? It could be about your own health, your family's health, or anything you'd like to add. Any final observations or comments? Now is a great time to say anything that was left unsaid.
Thank you again for taking the time to talk, the information you provided helps a lot.

Appendix B

As a person participating in this study you are being invited to discuss health and family wellness related to a dissertation project. Researchers at The University of Texas at Austin will perform the study. Participants must be 18 years old or older to participate in the study. The study will take about an hour and a half.

Participation in this study is completely voluntary. Your decision to participate or not participate will in no way affect the services you currently, or may, receive from People's Community Clinic. You may refuse to answer any questions you do not feel comfortable answering and you may leave the study at any time. There are no known physical, psychological, social, or legal risks to participating in this study, and benefits include the chance to learn information about a health topic and contribute to research. The potential risk to the participants is no greater than everyday life.

If you decide to take part in this study, you will be asked to consent to the following: a focus group discussion about health. All data will be kept in a locked office at The University of Texas at Austin and destroyed after the study is complete. Everything you say will remain confidential.. Only the research team at The University of Texas will have access to the data collected on family health as related to the dissertation project; your name will not be connected to the data you provide. Upon completion of the study you will be given a gift card. Personally identifiable information will be used only for the purposes of gift card and will then be destroyed.

If you have any questions about this study, please contact the lead investigator, Michael Mackert, Ph.D., at 512-471-8558. If you have questions or concerns regarding your rights as a study participant, or are unhappy at any time with any part of this study, you may contact – anonymously, if you wish – the Office of Research Support, 512-471-8871.

If you agree to participate, please respond "I agree" at this time.

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